Gunnison Copper Project
Biological Evaluation
2016 Threatened & Endangered Species Analysis

T. 15 S., R. 22 E, Sec. 36 and T. 15 S., R. 23 E., Sec. 31
Cochise County, Arizona

Prepared for:

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1. INTRODUCTION

Darling Geomatics (Darling) was retained by Excelsior Mining Corp to provide a Biological Evaluation on approximately 1,280 acres of land within a portion of the Gunnison Copper Project within Township. 15 South, Range 22 East, Section 36 and Township 15 South, Range 23 East, Section 31, Gila and Salt River Meridian, Cochise County, Arizona, herein referred to as the Analysis Area (Figure 1).

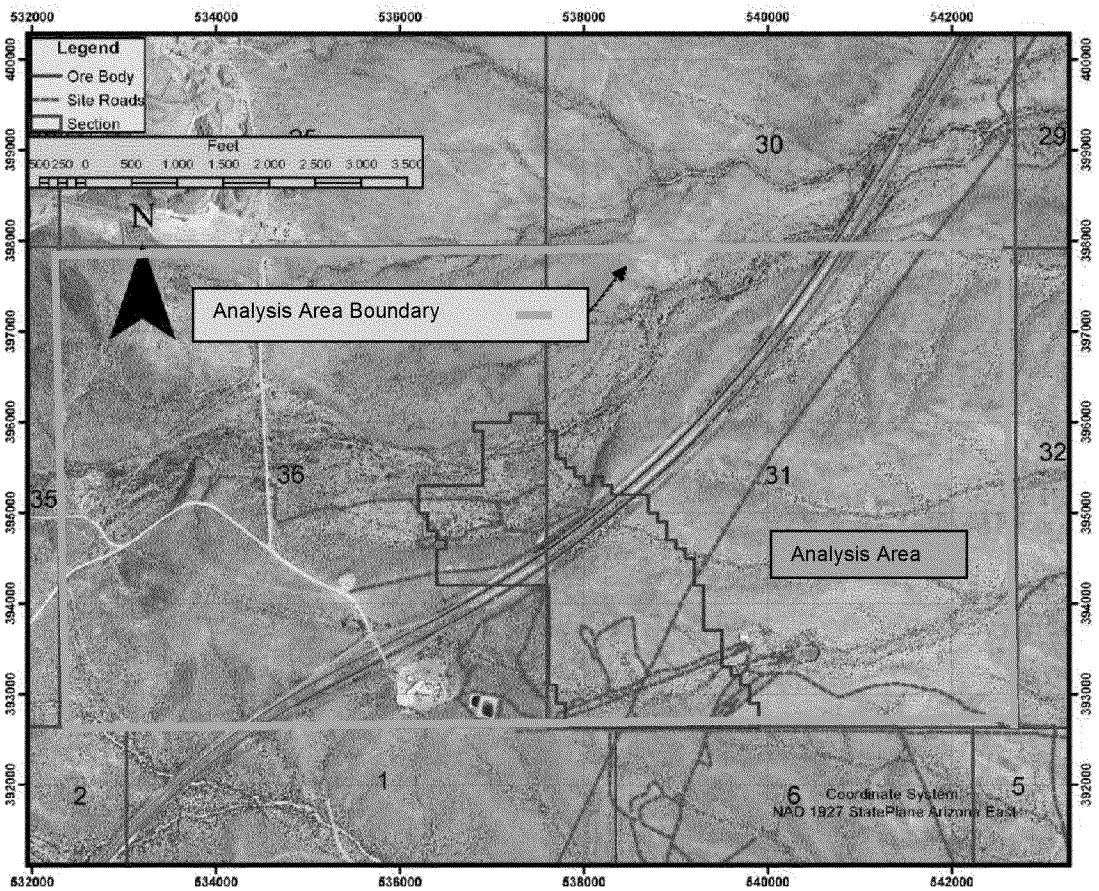


Figure 1. Analysis Area (Within Yellow Polygon)

This Biological Evaluation documents the evaluation of whether the U.S. Environmental Protection Agency's (EPA) proposed federal action, issuance of an underground injection permit, will result in potential risk to endangered and threatened (listed) species and/or designated critical habitats. The evaluation includes analysis of impacts to candidate species as well as species and critical habitats proposed for listing for conferencing

purposes under section 7 of the Endangered Species Act (ESA).

Step 1 consists of two parts: 1) establishing the action area for the proposed action, and 2) overlaying the listed, proposed, and candidate species (hereafter, "listed species" ranges and proposed and final critical habitat designations (hereafter, "critical habitat(s)" onto the action area. This step identifies which species and critical habitats have the potential to be affected by the proposed action.

A "no effect" determination is made for species and critical habitats whose ranges do not overlap with the action area and listed species that are presumed extinct as identified in the species reports. The categorization of "presumed extinct" are often difficult to ascertain and will be reviewed through outreach with FWS headquarters and field offices, as needed. Any listed species and/or critical habitat that warrants a "may affect" determination in Step 1 (*i.e.,* its range and/or critical habitat overlaps spatially with the action area and it is not presumed extinct) continues for further analysis in Step 2. Step 2 determines whether effects to individuals of listed species and/or Primary Constituent Elements (PCEs)/physical and biological features (PBFs) of critical habitat result in a "may affect, not likely to adversely affect (NLAA) determination, or a "may affect, likely to adversely affect" (LAA) determination. The NLAA determinations are submitted to the US Fish and Wildlife Service and the National Marine Fisheries Services (the Services) for concurrence, while the listed resources with a LAA determination are considered by the Services in their Biological Opinions (Step 3). This draft Biological Evaluation represents Steps 1 and 2 in the ESA consultation process.

1.1. DESCRIPTION OF THE FEDERAL ACTION

The proposed Federal action (the Action) encompasses the U.S. Environmental Protection Agency's (EPA) issuance of an underground injection control (UIC) permit within the State of Arizona for the Gunnison Copper Project. The purpose of the proposed action is to assure the Safe Drinking Water Act (SDWA) is met. Section 1422 of the SDWA requires applicants meet EPA's minimum requirements for UIC programs.

2.0 EVALUATION

The following three-step consultation process was used to evaluate the potential risk to listed species. The data and analyses for each step will be used, when possible, for the subsequent steps (see **Figure 1-2**). The analysis plan presented here describes the process for Steps 1 and 2.

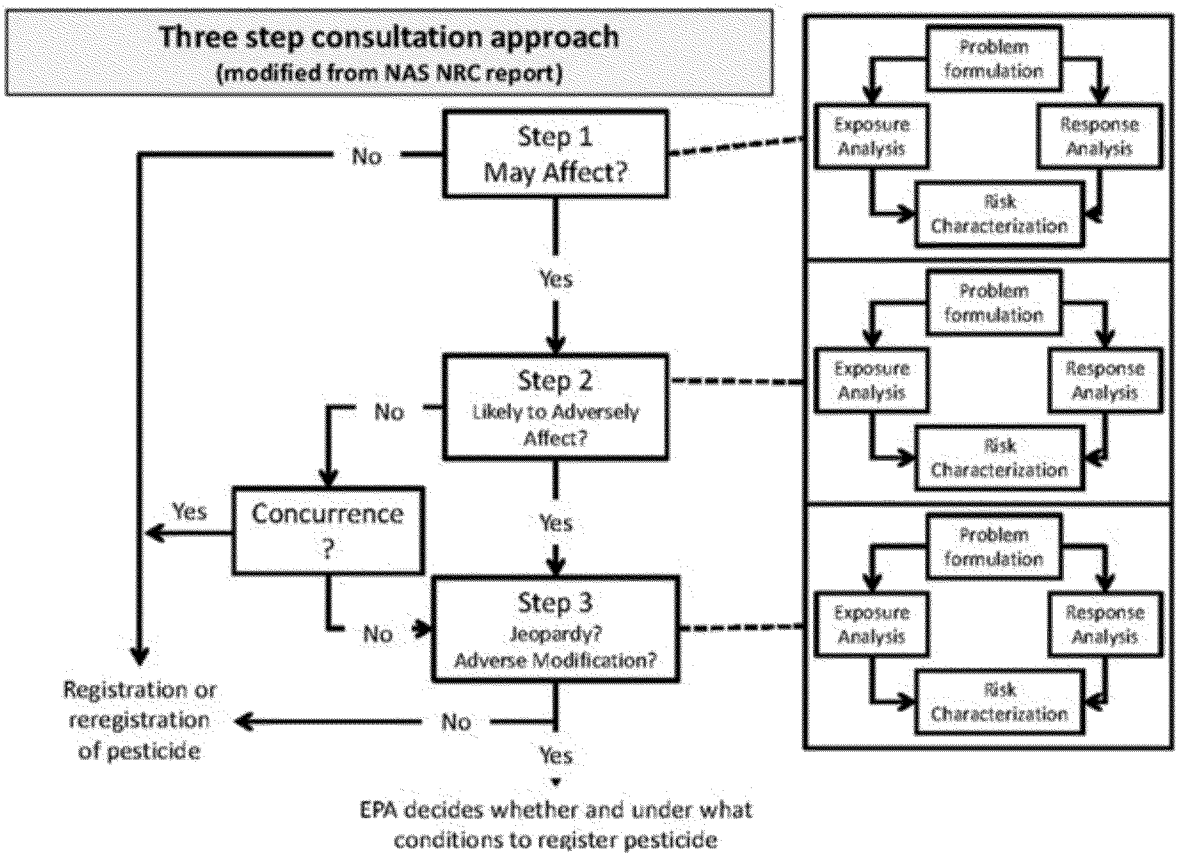


Figure 1.2 Three Step ESA Consultation Approach

This Biological Evaluation identifies which species and critical habitats have the potential to be affected by the proposed action (warranting a "may affect" determination), and which species would not be affected by the stressors of the proposed action (e.g., no overlap, and thus warranting a "no effect" determination). This document does not identify the degree of effect that would be anticipated (*e.g.,* an insignificant effect), or

whether the risk of exposure of adverse effects is unlikely to occur (*e.g.*, a discountable effect), where the action area overlaps with listed resources.

The action area is defined by the Endangered Species Act as, "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR §402.2).

Any species and/or critical habitat that warrants a "may affect" determination in Step 1 continues for further analysis in Step 2. Potential direct and indirect effects to listed resources will be considered to determine whether effects to individuals of listed species and/or PCEs/PBFs would be either: a) "insignificant," "discountable, " or "completely beneficial," resulting in a "may affect, not likely to adversely affect [NLAA] determination; or b) adverse, resulting in a "may affect, likely to adversely affect" (LAA) determination.

The NLAA determinations would be submitted to the Services with a request for concurrence with the determinations, while the listed resources with a LAA determination would be considered by the Services in their Biological Opinions (Step 3). The Step 3 analyses are beyond the purview of this analysis plan, but would determine whether the proposed action was likely to jeopardize listed species and/or adversely modify or destroy designated critical habitat. Steps 1 and 2 are described in greater detail in the following paragraphs. Step 3 is not discussed further in this document.

EPA's proposed action is the issuance of an UIC permit for the 24-year duration of the proposed action. In addition, future uses will be considered as addressed by this risk assessment [*i.e.*, biological evaluation (BE)].

The purpose of the proposed action is to provide tools for UIC on safe drinking water. EPA's proposed action encompasses all authorizations for underground inject control well for the 24-year duration of the proposed action.

3.0 SPECIES/CRITICAL HABITAT LOCATIONS

All available species and designated critical habitat location files were provided by the FWS for species listed as Endangered, Threatened, Experimental Population, Proposed Endangered, Proposed Threatened, Proposed Experimental Population, or Candidate under Endangered Species Act.

All available species and critical habitat location files were downloaded from the ECOS Portal (http://ecos.fws.gov/crithab) in December 2016 (Appendix A) and supplemented by other literature including the Arizona Game and Fish Department (AGFD) Heritage Database Management System (HDMS animal abstracts). Each species' habitat requirements were reviewed to determine the environmental parameters to investigate during field reconnaissance.

The Biological Evaluation includes documenting field surveys for the potential occurrence of U.S. Fish and Wildlife Service (USFWS) endangered, threatened, proposed, and candidate species (special-status species) that could be affected by activities that may be planned for within the Analysis Area. Senior Biologist Mary Darling updated the annual field habitat assessment of the Analysis Area on September 21, 2016. The Analysis Area is accessible via existing dirt roads and on foot.

Based on results of the literature research and field reconnaissance, a screening analysis was conducted to determine the potential for occurrence of special-status species on or near the Project Area. Species considered in this analysis were eliminated from more detailed review if:

- the Project Area is located outside of the species' known range or distribution, or
- required habitat components are not present within or near the project area.

4.0. DESCRIPTION OF ANALYSIS AREA

4.1 GENERAL ANALYSIS AREA DESCRIPTION

The Analysis Area is defined as T. 15 S., R. 22 E, Sec. 36 and T. 15 S., R. 23 E., Sec. 31 of the Gunnison Copper Project, as described above and displayed in Figure 1. There is no known perennial water within the Analysis Area. The Analysis Area has no habitat for any species dependent on permanent water or saturated soils. Existing land-use activities include livestock ranching, mining and recreation. Dirt roads in the area are used by employees and consultants working for Excelsior Mining Corp, recreationists, ranchers, geologists, law enforcement, and a variety of others.

4.1.1 VEGETATION

The Analysis Area and its surroundings are generally characterized by rolling hills of mesquite (*Prosopis velutina*), ocotillo *(Fouquieria splendens*), various cacti (*Opuntia spp.*, *Echinocactus* spp., *Mammillaria* spp., etc.) and desert grassland. Vegetation within this area includes Sonoran desert scrub, semi-desert grasslands, mesquite grasslands, and Chihuahuan desert scrub. Grasslands in this area are composed of a variety of primarily native grasses with interspersed shrubs and forbs. Vegetation within xeroriparian riparian communities includes bare-banked washes dominated by mesquite trees and shrubs.

Plants observed include white thorn acacia (*Acacia constricta),* catclaw acacia (*Acacia greggii),* purple three-awn (*Aristida purpurea),* desert broom (*Baccharis sarothroides),* side-oats grama (*Bouteloua spp.)* blue grama grass (*Bouteloua gracilis),* fairy duster (*Calliandra eriophylla),* desert spoon (*Dasylirion wheeleri),* turpentine bush (*Ericameria laricifolia)*, ocotillo, creosote bush (*Larrea tridentate),* pincushion cacti (*Mammillaria spp.),* sacaton (*Sporobolus spp,),* banana yucca (*Yucca baccata), and* soaptree yucca (*Yucca elata).*

4.1.2 WILDLIFE

Wildlife present within the vicinity of the Analysis Area include those species common to semi-arid grassland and scrub mesquite such as desert mule deer (*Odocoileus hemionus crooki*), Coues' whitetail deer (*O. virginianus couesi*), mountain lion (*Felis concolor*), bobcat (*F. rufus*), javelina (*Dicotyles tajacu*), coyote (*Canis latrans*), javelina (*Dicotyles tajacu*), scaled quail (*Callipepla squamata*), Gambel's quail (*Lophortyx gambeli*), curve- billed thrasher (*Toxostoma curvirostre*), white winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), raven *(*Corvus corax), turkey vulture (*Cathartes aura)*, red- tailed hawk (*Buteo jamaicensis)*, western diamondback (*Crotalus atrox)* and Mohave rattlesnakes (*Crotalus scutulatus*).

4.2 BIOLOGICAL EVALUATION SCREENING ANALYSIS

Initial screening was conducted to determine the potential for the occurrence of special-status species or species of concern on the Analysis Area. This was accomplished by comparing the known characteristics of habitat used by the species being evaluated with the habitat present on the Analysis Area and in the surrounding area.

4.2.1 USFWS LISTED SPECIES NOT OCCURRING WITHIN THE ANALYSIS AREA

The USFWS data base (December 8, 2016) (Appendix A) includes six threatened or endangered species and one candidate species within Cochise County that may occur or could potentially be affected by activities in this location (Table 1). There is no critical habitat within the Analysis Area.

There is extremely low to no potential for occurrence of any of the seven special-status species listed in Table 1. The basis for this determination for each species is provided in the following section. These conclusions are based on field observations between 2011 and 2016, habitat analysis, review of the best available information regarding the biology of these species, comparisons of this information with habitat on the Analysis Area, and known ranges of the species. These species have been eliminated from further review because the Analysis

Area is outside of their known ranges, or they are found in habitats dissimilar to those occurring on the Analysis Area.

Table 1. Step 2 - U.S. Fish and Wildlife Service Threatened, Endangered, and Candidate Species and Potential for Occurrence in the Analysis Area and Basis for the Determination.

Species	Citation	Potential Occurrence at Within Analysis Area; Basis for Potential Occurrence
Yellow-Billed Cuckoo (*Coccyzus americanus*) Western U.S. DPS Threatened	http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0 6R	None – Analysis Area lacks large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries). Not within historical habitat or proposed critical habitat.
Northern Aplomado Falcon (*Falco femoralis septentrionalis*) Experimental nonessential population	http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06V	None – No falcons observed and no Aplomado falcons reported for this area. No critical habitat in Arizona.
Chiricahua Leopard Frog (*Lithobates chiricahuensis*) Threatened species	http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02F	None – Analysis Area lacks permanent or nearly permanent water sources. Area is outside of species critical habitat.
Northern Mexican Gartersnake, (*Thamnophis eques megalops*) Threatened species	http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=C0 4Q	None – Analysis Area lacks cienegas, ephemeral stock tanks, large-riverriparian woodlands and forests, streamside gallery forest. The Analysis Area is outside of the proposed critical habitat.
Jaguar (*Panthera onca*) Endangered species	http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A040	None – Analysis Area lacks high density of Sonoran desertscrub, suitable cover, water and forage. The Analysis Area is outside of the species critical habitat.
Wright's Marsh thistle (*Cirsium wrightii*) Candidate species	http://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=Q3N3#lifeHistory	None – Analysis area lacks wetlands and alkaline soils near seeps, springs and along marshy edges of streams and ponds.

Table 1. Step 2 - U.S. Fish and Wildlife Service Threatened, Endangered, and Candidate Species and Potential for Occurrence in the Analysis Area and Basis for the Determination.		
Species	**Citation**	**Potential Occurrence at Within Analysis Area; Basis for Potential Occurrence**
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) Endangered species	https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0AD	Low to None – Analysis Area lacks roosts and desert scrub habitat with abundance of agave and columnar cacti present as food plants.

Information from the USFWS Information, Planning, and Conservation System (IPAC) December 8, 2016 (Appendix A).

US Fish and Wildlife Service Categories

- **Endangered**-Taxa in danger of extinction throughout all or a significant portion of its range.
- **Threatened**-Taxa likely to become endangered in the foreseeable future throughout all or a significant portion of its range.
- **Candidate**-Taxa for which sufficient data exists to support proposals to list , but the formal proposals to list the species as Threatened or Endangered have not been made by the USFWS because this action is prohibited by other listing activity.

To date, including during surveys every year since 2011, no threatened, endangered, candidate or experimental population species have been detected within or adjacent to the Analysis Area.

5. 0 May Affect Analysis

No Effect

A "no effect" determination is made for species and critical habitats whose ranges do not overlap with the action area and listed species that are presumed extinct as identified in the species reports. The proposed action was determined to have no affect on the following species:

I. Yellow-Billed Cuckoo (Coccyzus americanus)

Threatened Distinct Population Segment

The primary constituent elements identified as essential to the conservation of the species (48554 Federal Register / Vol. 79, No. 158 / Friday, August 15, 2014 / Proposed Rules) are:

Element 1 - Riparian woodlands. Riparian woodlands with mixed willow cottonwood vegetation, mesquite-thornforest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 ft (100 m) in width and 200 ac (81 ha) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow dominated, have above average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

Element 2— Adequate prey base. Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

Element 3— Dynamic riverine processes. River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old. Because the species exists in disjunct breeding populations across a wide geographical and elevational range and is subject to dynamic events, the river segments described below

are essential to the conservation of the western yellow-billed cuckoo, because they maintain stability of subpopulations, provide connectivity between populations and habitat, assist in gene flow, and protect against catastrophic loss. The occupied rivers and streams that are proposed for designation contain physical and biological features that are representative of the historic and geographical distribution of the species. All river segments proposed as western yellow-billed cuckoo critical habitat are within the geographical area occupied by the species as defined by the species' DPS at the time of listing (i.e., currently) and contain the features essential to the conservation of the species. The features essential to the conservation of the species and refined primary constituent elements are present throughout the river segments selected, but the specific quality of riparian habitat for nesting, migration, and foraging will vary in condition and location over time due to plant succession and the dynamic environment in which they exist.

No Affect:

No suitable riparian woodland or necessary dynamic riverine processes and no critical habitat areas exist within the analysis area.

The proposed action will not affect the yellow billed cuckoo or its critical habitat.

II. Northern Aplomado Falcon (Falco femoralis septentrionalis)

Experimental nonessential population

Habitat requirements: Falcons historically occurred in Chihuahuan Desert grasslands within the nonessential population area, and habitats in these areas are similar to those that support nesting falcons in northern Mexico populations. Primary considerations for identifying falcon release sites include areas: (1) Within or in proximity to potentially suitable habitat, including open grassland habitats that have scattered trees, shrubs, or yuccas for nesting and perching; (2) supporting available prey for falcons (e.g., insects, small to medium-sized birds, rodents); (3) with minimal natural and artificial hazards (e.g., predators, open-water tanks) and potential hazards that can be minimized where practical; (4) with access for logistical support; (5) with a large extent of potentially suitable habitat surrounding a release site and its proximity to other similar habitats; and (6) with a willing landowner or land manager.

No Affect:

Our analysis concludes that no Northern Aplomado falcons have been released in or near the analysis area, none have ever been documented there and there are no known plans

to transplant these birds into the analysis area, thus the project will not affect the Northern Aplomado falcon. There is no critical habitat designated for this species.

III. Chiricahua leopard (*Lithobates chiricahuensis*)

Threatened Species

Habitat requirements: Primary constituent elements identified as essential to the conservation of the Chiricahua leopard frog in areas occupied at the time of listing of designated critical habitat are as follows (USFWS 2012b:16343): aquatic breeding habitat and immediately adjacent uplands (with standing bodies of fresh water; emergent and/or submerged vegetation, root masses, undercut banks, fractured rock substrates, or some combination thereof; no or few nonnative predators; absence of chytridiomycosis; and upland habitats that provide opportunities for foraging and basking that are immediately adjacent to or surrounding breeding aquatic and riparian habitat); and dispersal and nonbreeding habitat, consisting of areas with ephemeral (present for only a short time), intermittent, or perennial water that are generally not suitable for breeding, and associated upland or riparian habitat that provides corridors (overland movement or along wetted drainages) for frogs among breeding sites in a metapopulation (not more than 1.0 mile overland, 3.0 miles along ephemeral or intermittent drainages, 5.0 miles along perennial drainages, or some combination thereof not to exceed 5.0 miles; in overland and nonwetted corridors, provide some vegetation cover or structural features for shelter, forage, and protection from predators, and in wetted corridors, provide some ephemeral, intermittent, or perennial aquatic habitat; are free of barriers that block movement by Chiricahua leopard frogs that are 50 acres or more in size, and highways that do not include frog fencing and culverts; and walls, major dams, or other structures that physically block movement). With the exception of impoundments, livestock tanks, and other constructed waters, critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries.

No Affect:

Our analysis concluded that the primary constituent elements missing within the analysis area include permanent water and a breeding site that is not more than 1.0 mile overland. There is one stock tank within the analysis area that is dry most years during early summer months. There have been Chiricahua leopard frogs reported 3 miles away where permanent water exists. However, there is no permanent water for breeding within the analysis area. The analysis area is not within critical habitat.

Reconnaissance each year since 2011 has been conducted at the ephemeral stock pond within the analysis area known to support or suspected of supporting surface water and no frogs or prey for frogs were detected. Therefore, the proposed action will have no affect on the Chiricahua leopard frog or its critical habitat.

IV. Northern Mexican Gartersnake (*Thamnophis eques megalops*)

Threatened species

Habitat requirements: Primary constituent elements (i.e., physical or biological features) essential to the conservation of northern Mexican gartersnakes in areas occupied at the time of listing have been identified and include (USFWS 2013a):

(1) Aquatic or riparian habitat that includes: (a) Perennial or spatially intermittent streams of low to moderate gradient that possess appropriate amounts of in channel pools, off-channel pools, or backwater habitat, and that possess a natural, unregulated flow regime that allows for periodic flooding or, if flows are modified or regulated, a flow regime that allows for adequate river functions, such as flows capable of processing sediment loads; or (b) Lentic wetlands such as livestock tanks, springs, and cienegas; and (c) Shoreline habitat with adequate organic and inorganic structural complexity to allow for thermoregulation, gestation, shelter, protection from predators, and foraging opportunities (e.g., boulders, rocks, organic debris such as downed trees or logs, debris jams, small mammal burrows, or leaf litter); and (d) Aquatic habitat with characteristics that support a native amphibian prey base, such as salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present at levels that do not affect survival of any age class of the northern Mexican gartersnake or the maintenance of prey populations.

(2) Adequate terrestrial space (600 feet lateral extent to either side of bankfull stage) adjacent to designated stream systems with sufficient structural characteristics to support life-history functions such as gestation, (extended inactivity).

(3) A prey base consisting of viable populations of native amphibian and native fish species.

(4) An absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs (*Lithobates catesbeianus*), and/or crayfish (*Orconectes virilis*, *Procambarus clarki*, etc.), or occurrence of these nonnative species at low enough levels such that recruitment of northern Mexican gartersnakes and maintenance of viable native fish or soft-rayed, nonnative fish populations (prey) is still occurring.

No Affect:

Our study has concluded that the analysis area has no aquatic or riparian habitat with perennial or spatially intermittent streams. The livestock tank only has water during wet years and the tank lacks a prey base of native amphibian and native fish species. Therefore, the proposed action will have no affect on the Mexican gartersnake.

V. Jaguar (*Panthera onca*)

Endangered species

Habitat requirements: The primary constituent elements of the revised proposed critical habitat specific to jaguars are expansive open spaces in the southwestern United States of at least 38.6 square miles in size that: provide connectivity to Mexico; contain adequate levels of native prey species; include surface water sources available within 12.4 miles of each other; contain 1 to 50 percent canopy cover within Madrean evergreen woodland or semidesert grassland vegetation communities; are characterized by rugged terrain; are characterized by minimal to no human population density, no major roads, or no stable nighttime lighting over any 0.4-square-mile area; and are below 6,562 feet in elevation (USFWS 2013c).

No Affect:

The analysis area lacks adequate levels of native prey species, surface water sources available within 12.4 miles of each other; and rugged terrain. The analysis area is also adjacent to a major road, Interstate 10. There is no documentation of a jaguar ever being detected in this area. The area does not contain suitable cover for jaguar movement. The analysis area is not within jaguar critical habitat. Therefore, the proposed action will not affect the jaguar.

VI. Wright's Marsh thistle (*Cirsium wrightii*)

Candidate species

Habitat requirements: This thistle is prickly with short black spines and a 3-to 8-foot single stalk covered with succulent leaves. Flowers range from white to pale pink to vivid pink. There are eight general confirmed locations of Wright's marsh thistle in New Mexico. Wright's marsh thistle has been extirpated from all previously known locations in Arizona, and was misidentified and likely not ever present in Texas.

No Affect:

USFWS states that the species has been extirpated from Arizona and surveys performed for this plant during annual biological monitoring did not detect its presence. Therefore the proposed action will not affect this thistle.

May Affect

Listed species and/or critical habitat that warrants a "may affect" determination in Step 1 (*i.e.,* its range and/or critical habitat overlaps spatially with the action area and it is not presumed extinct) continues for further analysis in Step 2. Step 2 determines whether effects to individuals of listed species and/or Primary Constituent Elements (PCEs)/physical and biological features (PBFs) of critical habitat result in a "may affect, not likely to adversely affect (NLAA) determination, or a "may affect, likely to adversely affect" (LAA) determination. The NLAA determinations are submitted to the US Fish and Wildlife Service and the National Marine Fisheries Services (the Services) for concurrence, while the listed resources with a LAA determination are considered by the Services in their Biological Opinions (Step 3). This draft Biological Evaluation represents Steps 1 and 2 in the ESA consultation process.

I. Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)

Endangered species

In the United States, lesser long-nosed bat habitat includes semidesert grasslands and shrublands up to the oak transition zone (USFWS 1997e). Lesser long-nosed bats roost in caves and abandoned mines and tunnels (USFWS 1988). Lesser long-nosed bats are known to "roost-switch," possibly in response to forage availability, which makes the small number of known roosts potentially significant to the population (USFWS 2007a). A colony of bats may move among several roost sites, and they may require multiple roost sites to meet their foraging and reproductive needs (Cole and Wilson 2006). The lack of, or presence of few, lesser long-nosed bats at a roost at one time does not indicate that bat numbers have declined or mean that the roost site is insignificant, or vice versa (USFWS 2007a). A suitable day roost, typically a cave or mine, is probably the most important habitat requirement; however, potentially suitable roosts must be within reasonable foraging distances of sufficient amounts of required foods (the nectar and pollen of paniculate agave flowers and the nectar, pollen, and fruit produced by columnar cacti). In Arizona, four species of paniculate agaves, Palmer's agave (*Agave palmeri*), Parry's agave (*A. parryi*), desert agave (*A. deserti*), and amole (*A. schotti*), and two columnar cacti, saguaro cactus and organ pipe cactus (*Stenocereus thurberi*), provide the

main food sources for this nectivorous bat. Cactus flowers and fruits are available during the spring and early summer, whereas blooming agaves are primarily available during mid- to late summer (typically from July through early October).

May Affect, Not Likely to Adversely Affect:
The analysis area lacks roosts in the form of caves, abandoned mines and tunnels, which is the limiting factor for these bats. The analysis area also lacks adequate food for the lesser long-nosed bat (the nectar and pollen of paniculate agave flowers and the nectar, pollen, and fruit produced by columnar cacti). Agaves are rare and average less than one plant per acre within the analysis area. There are no columnar cacti as defined by USFWS (Mexican giant cardon or elephant cactus, saguaros and organpipe cactus) in the 1994 Lesser Long-Nosed Bat Recovery Plan.

Therefore, the limiting factors for the lesser long-nosed bat are not present in a density that would adversely affect this species. The analysis area is not within critical habitat for this species. The proposed action is not likely to adversely affect lesser long-nosed bats, even if they fly through the area as they migrate due to lack of roosts and extremely low density of available forage.

6.0 SUMMARY OF FINDINGS

The Analysis Area is undeveloped land that was used historically for ranching, mining and recreation.

No USFWS listed, candidate or experimental species were detected during 2016 and earlier field surveys (2011 through 2015) nor have any federally protected species records been located that would indicate past presence of federally listed or proposed listed species within the Analysis Area in the past.

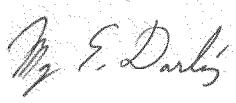
The proposed action may affect foraging lesser long-nosed bats but is not likely to adversely affect the bats due to the lack of roosts and plant forage species.

The proposed action will have no effect on yellow-billed cuckoo, Aplomado Falcon, Mexican Garter Snake, Chiricahua Leopard Frog, Wrights Marsh Thistle or Jaguar because the Analysis Area is outside of their known ranges or though there is some limited habitat potential within the Analysis Area, there are no records of the species presence and no detections in 2011 through 2016 field surveys.

Migratory birds use the Analysis Area. Any activity that results in the take of federally listed species or migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.

This Biological Evaluation for T. 15 S., R. 22 E, Sec. 36 and T. 15 S., R. 23 E., Sec. 31 of the Gunnison Copper Project was prepared by wildlife biologist, Mary Darling.

Darling Geomatics



Mary E. Darling, MS, JD

Project Biologist

Appendix A

Gunnison Project

IPaC Trust Resources Report

Generated December 8, 2016
https://ecos.fws.gov/ipac/project/
LKJYT7N3HVESTGXV5O7QPUYC2A/review

Cochise County, Arizona

LOCAL OFFICE

December 8, 2016

Endangered species

Listed species

are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service. The species below are potentially affected by activities in this location.

THUMBNAILS LIST

Amphibians

NAME

STATUS

Chiricahua Leopard FrogCHRana Chiricahuensis

Threatened

Birds

NAME

STATUS

Northern Aplomado FalconFalco Femoralis Septentrionalis

EXPN

- Yellow-billed CuckooCHCoccyzus Americanus

  Threatened

Flowering Plants

- NAME

  STATUS

- Wright's Marsh ThistleCirsium Wrightii

  Candidate

Mammals

- NAME

  STATUS

- JaguarCHPanthera Onca

  Endangered

- Lesser Long-nosed BatLeptonycteris Curasoae Yerbabuenae

  Endangered

Reptiles

- NAME

  STATUS

- Northern Mexican GartersnakeCHThamnophis Eques Megalops

  Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act

and the Bald and Golden Eagle Protection Act

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Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

The species of migratory birds below are potentially affected by activities in this location.

RELATED LINKS

Birds of Conservation Concern

Measures for avoiding and minimizing impacts to birds

Nationwide conservation measures for birds

Year-round bird occurrence data

THUMBNAILS LIST

NAME	SEASON(S)
Arizona WoodpeckerPicoides Arizonae	Year-round
Bald EagleHaliaeetus Leucocephalus	Wintering
Bendire's ThrasherToxostoma Bendirei	Year-round
Black-chinned SparrowSpizella Atrogularis	Wintering
Black-throated Gray WarblerDendroica Nigrescens	Breeding

- Blue-throated HummingbirdLampornis Clemenciae
  Breeding
- Botteri's SparrowAimophila Botterii
  Breeding
- Brewer's SparrowSpizella Breweri
  Wintering
- Burrowing OwlAthene Cunicularia
  Year-round
- Canyon TowheePipilo Fuscus
  Year-round
- Chestnut-collared LongspurCalcarius Ornatus
  Wintering
- Common Black-hawkButeogallus Anthracinus
  Breeding
- Costa's HummingbirdCalypte Costae
  Breeding
- Elegant TrogonTrogon Elegans
  Year-round
- Elf OwlMicrathene Whitneyi
  Breeding
- Flammulated OwlOtus Flammeolus
  Breeding
- Fox SparrowPasserella Iliaca
  Wintering
- Golden EagleAquila Chrysaetos
  Year-round

- Grace's WarblerDendroica Graciae
  - Breeding
- Grasshopper SparrowAmmodramus Savannarum Ammolegus
  - Year-round
- Gray VireoVireo Vicinior
  - Breeding
- Lark BuntingCalamospiza Melanocorys
  - Wintering
- Lawrence's GoldfinchCarduelis Lawrencei
  - Year-round
- Lewis's WoodpeckerMelanerpes Lewis
  - Wintering
- Loggerhead ShrikeLanius Ludovicianus
  - Year-round
- Long-billed CurlewNumenius Americanus
  - Wintering
- Lucy's WarblerVermivora Luciae
  - Breeding
- Mccown's LongspurCalcarius Mccownii
  - Wintering
- Mountain PloverCharadrius Montanus
  - Wintering
- Northern Beardless-tyrannuletCamptostoma Imberbe
  - Breeding
- Olive WarblerPeucedramus Taeniatus
  - Year-round

- Peregrine FalconFalco Peregrinus
  Year-round
- PhainopeplaPhainopepla Nitens
  Breeding
- Red-faced WarblerCardellina Rubrifrons
  Breeding
- Rose-throated BecardPachyramphus Aglaiae
  Breeding
- Rufous-crowned SparrowAimophila Ruficeps
  Year-round
- Short-eared OwlAsio Flammeus
  Wintering
- Sonoran Yellow WarblerDendroica Petechia Ssp. Sonorana
  Breeding
- Sprague's PipitAnthus Spragueii
  Wintering
- Swainson's HawkButeo Swainsoni
  Breeding
- Varied BuntingPasserina Versicolor
  Breeding
- Virginia's WarblerVermivora Virginiae
  Breeding
- Williamson's SapsuckerSphyrapicus Thyroideus
  Wintering
- Willow FlycatcherEmpidonax Traillii
  Breeding